

"Directional Microphone System"
 Inventors: Jon C. Taenzer and Roman E. Roginsky
 Application Serial No. 09/610,188

REPLACEMENT DRAWINGS

1/14



Figure 1A
 (Prior Art)

ZERO-ORDER
 MICROPHONE
 (OMNI DIRECTIONAL)

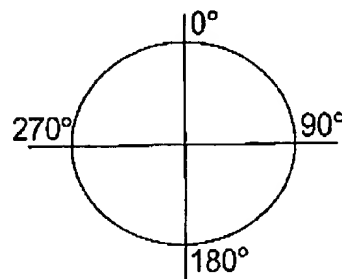


Figure 1B
 (Prior Art)

FIRST-ORDER
 MICROPHONE
 $DR = \tau_D / \tau_P$

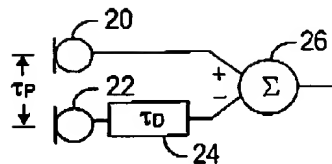


Figure 2A
 (Prior Art)

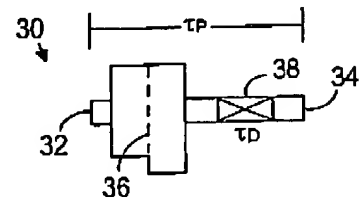


Figure 2B
 (Prior Art)

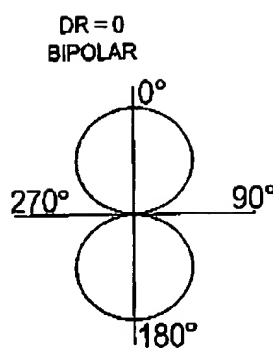


Figure 2C
 (Prior Art)

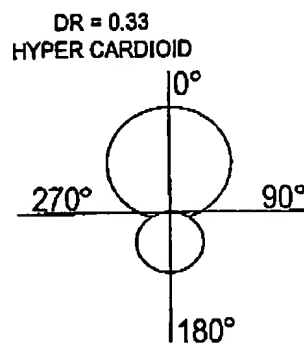


Figure 2D
 (Prior Art)

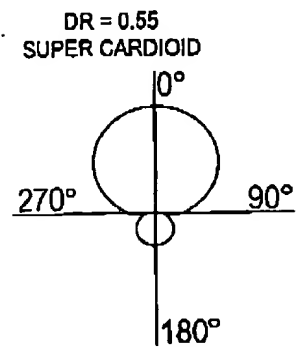


Figure 2E
 (Prior Art)

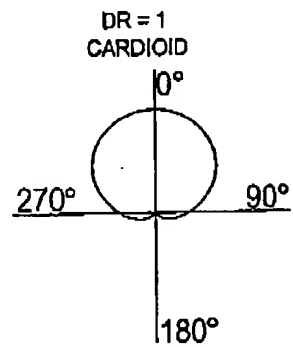


Figure 2F
 (Prior Art)

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REPLACEMENT DRAWINGS

2/14

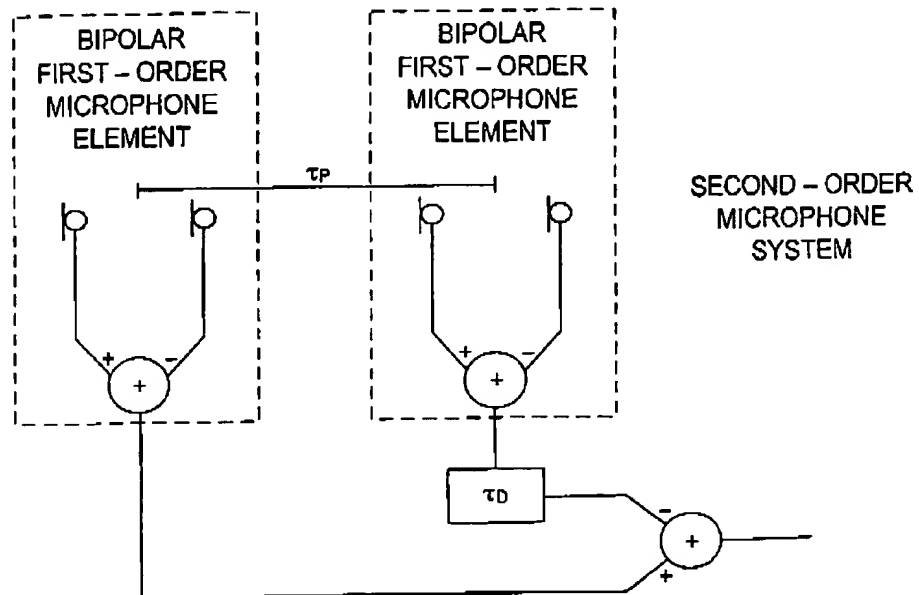


Figure 3A
(Prior Art)

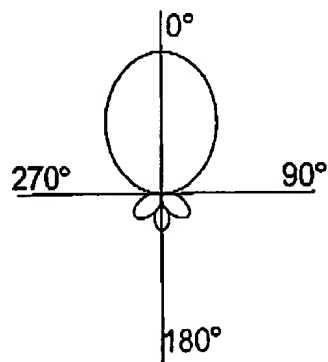


Figure 3B
(Prior Art)

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REPLACEMENT DRAWINGS

3/14

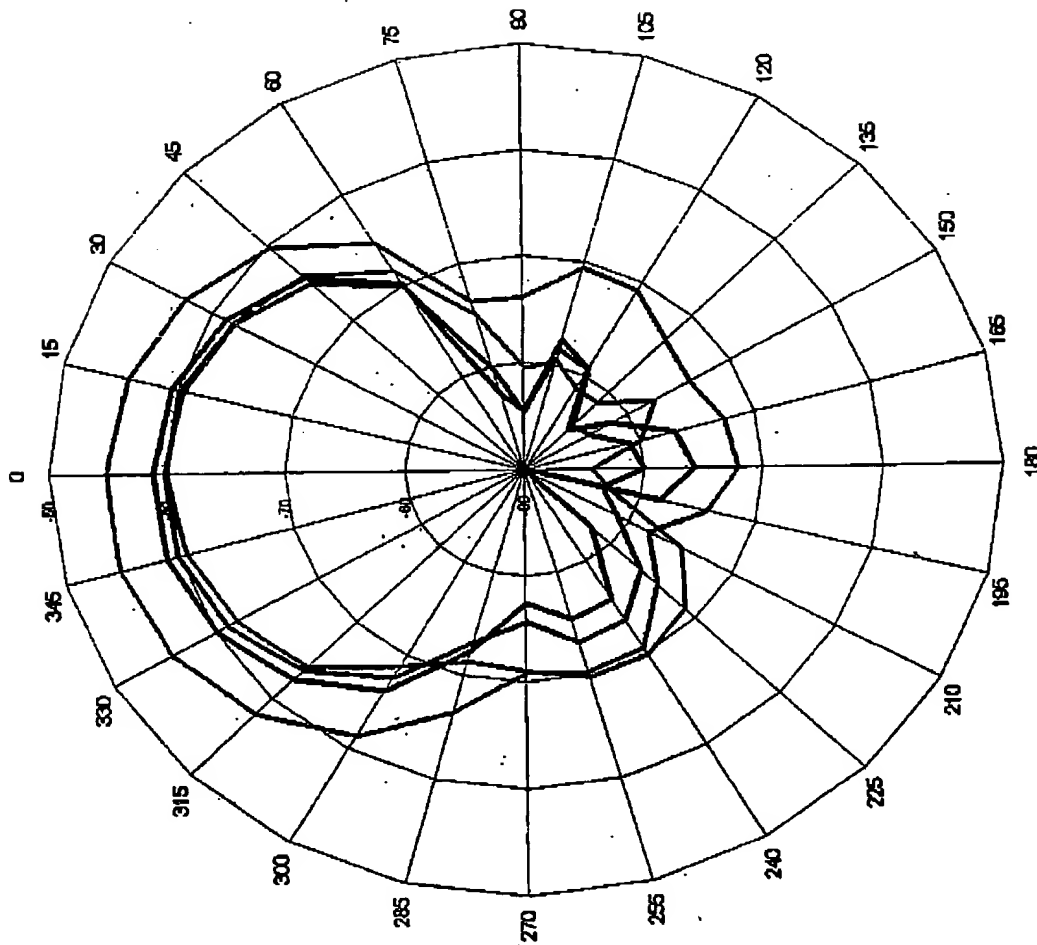
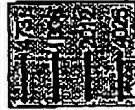


Figure 4A

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REPLACEMENT DRAWINGS

4/14

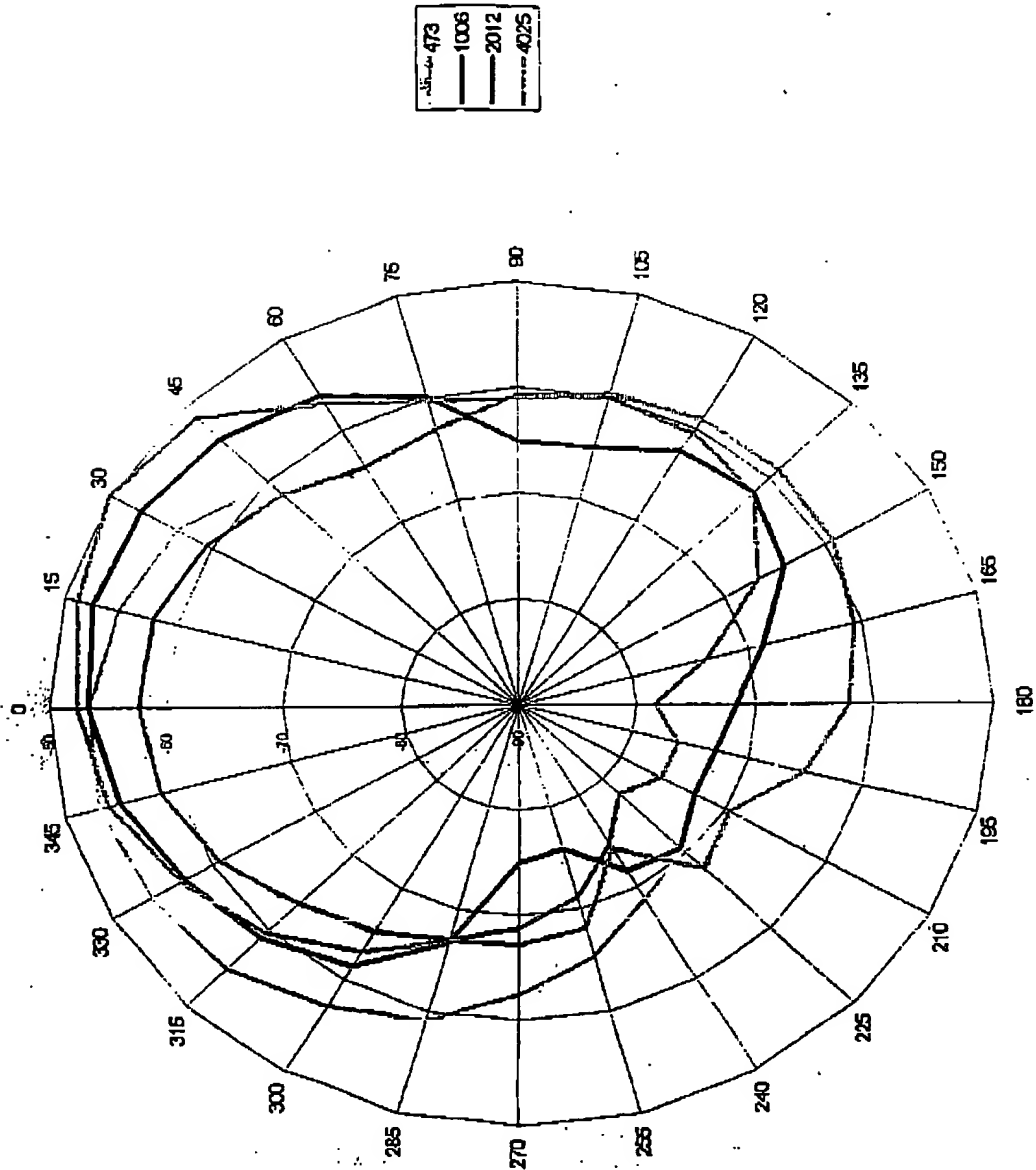


Figure 4B

"Directional Microphone System"
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REPLACEMENT DRAWINGS

5/14

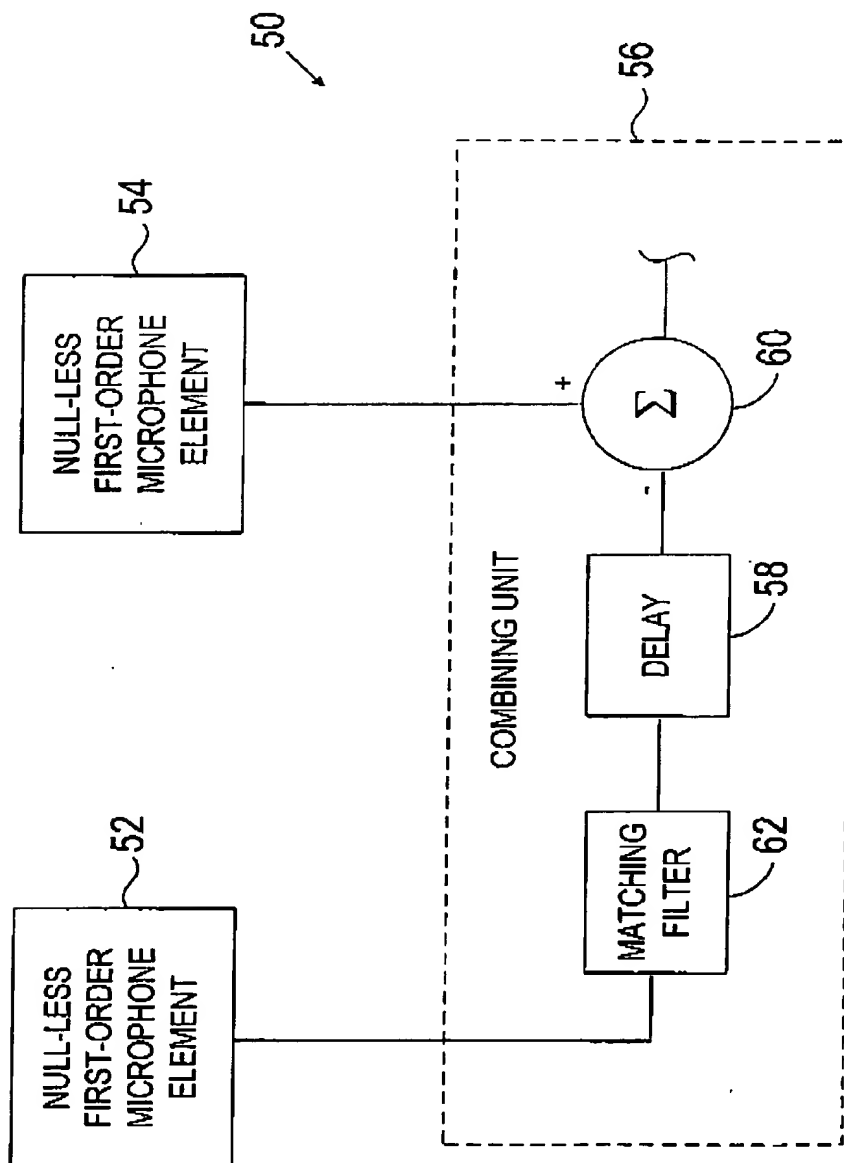


Figure 5

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REPLACEMENT DRAWINGS

6/14

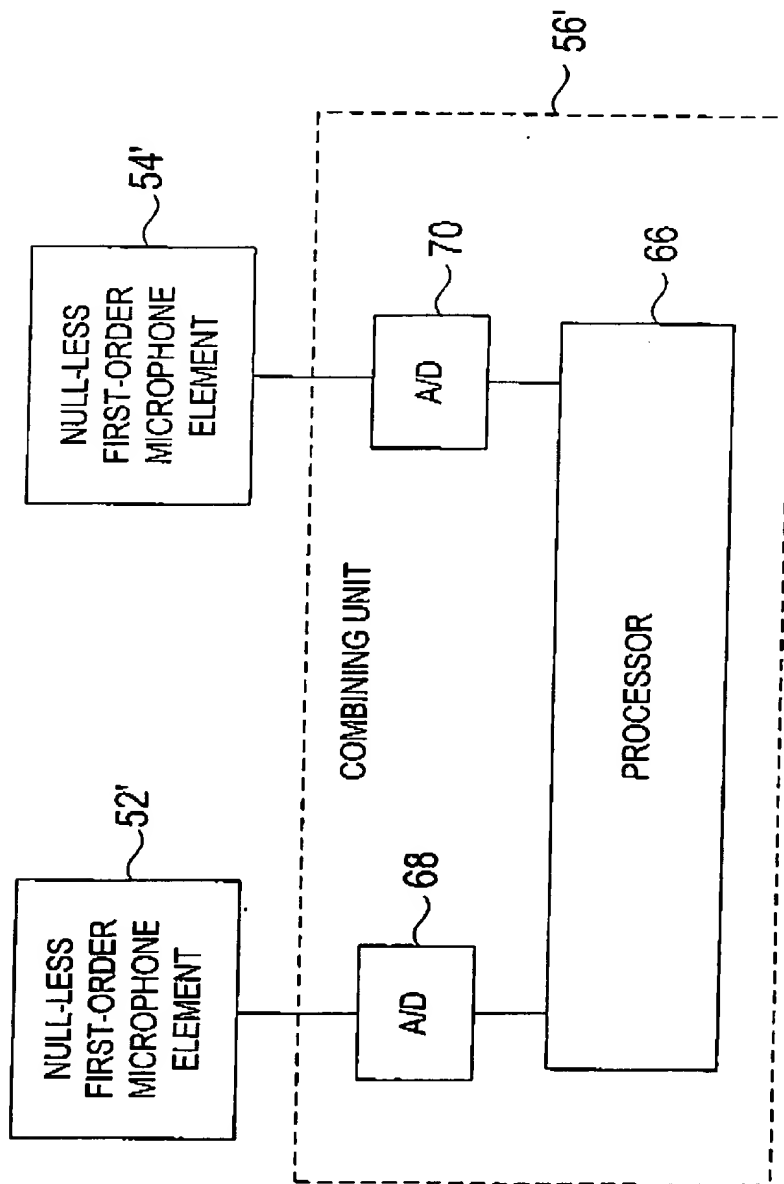


Figure 6

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REPLACEMENT DRAWINGS

7/14

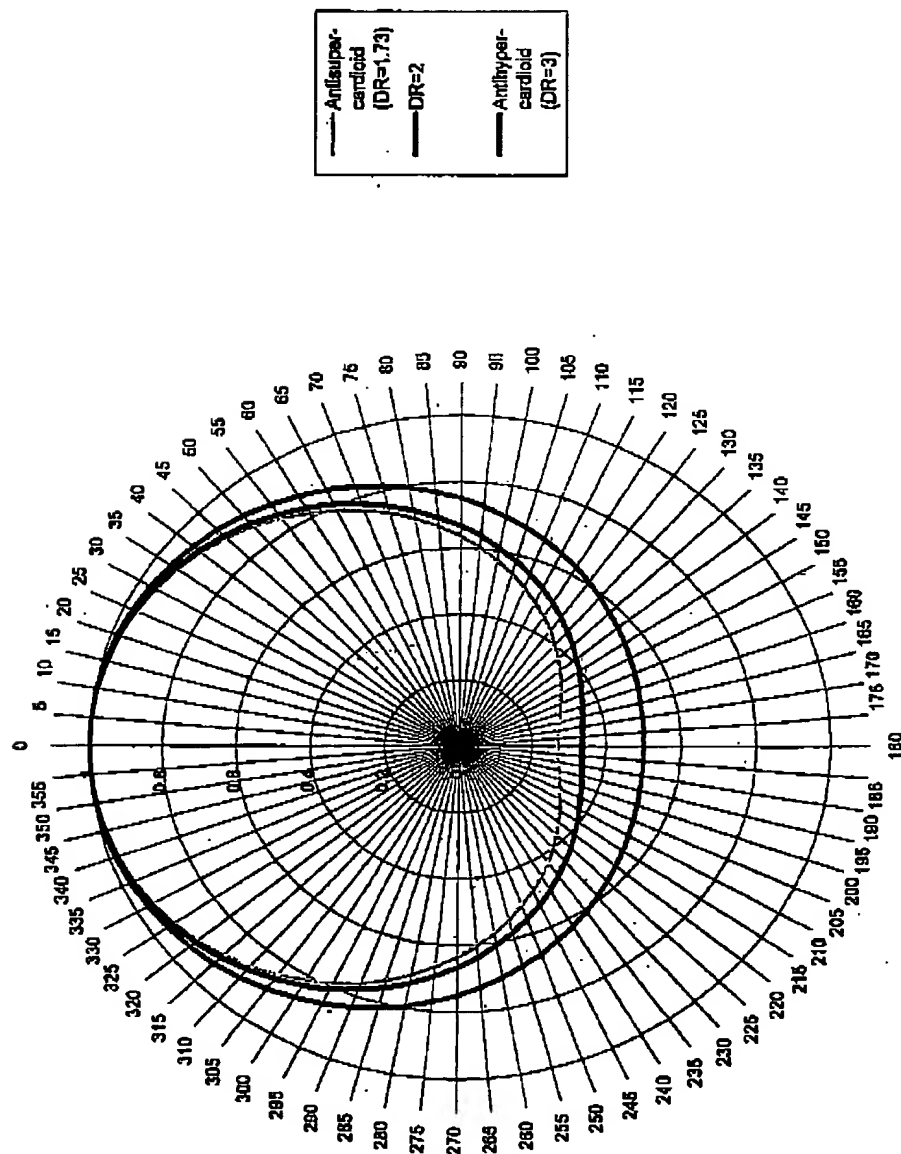


Figure 7

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REPLACEMENT DRAWINGS

8/14

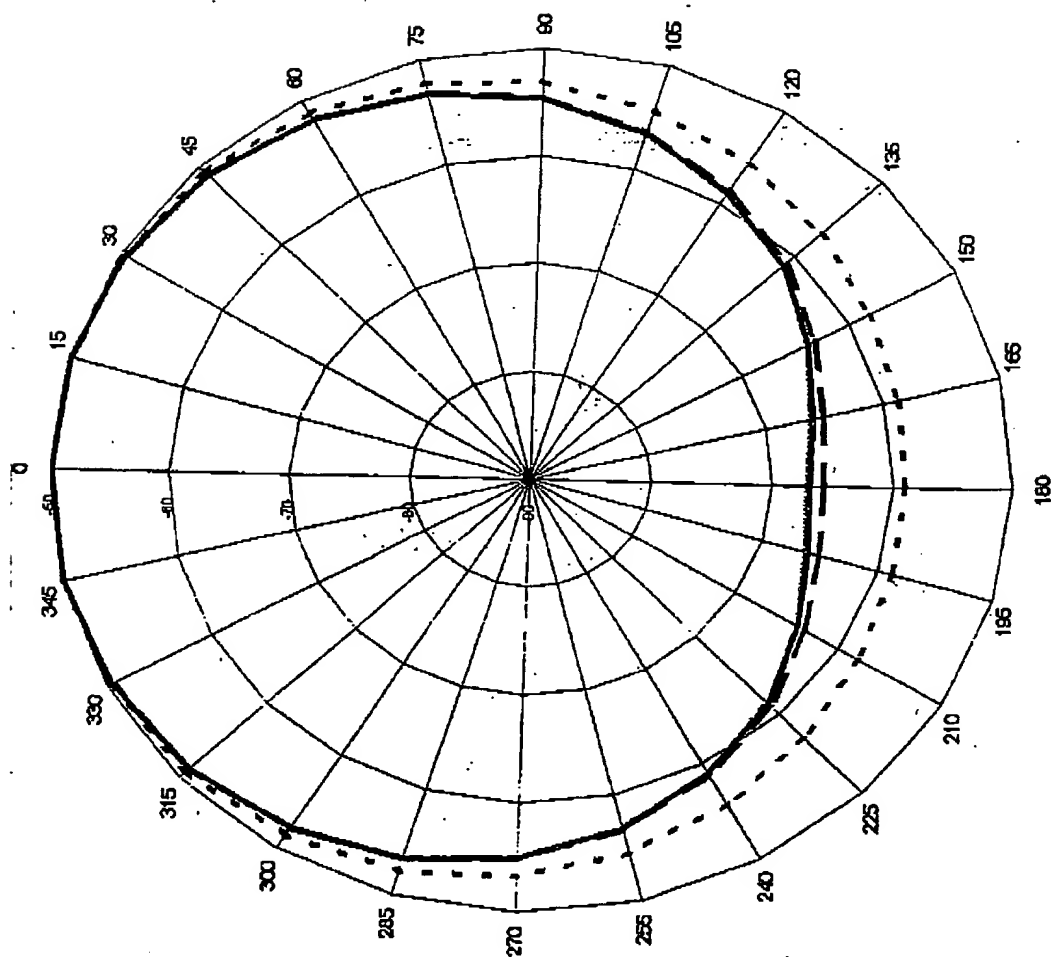
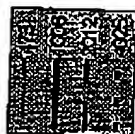


Figure 8A

"Directional Microphone System"
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Application Serial No. 09/610,188

9/14

REPLACEMENT DRAWINGS

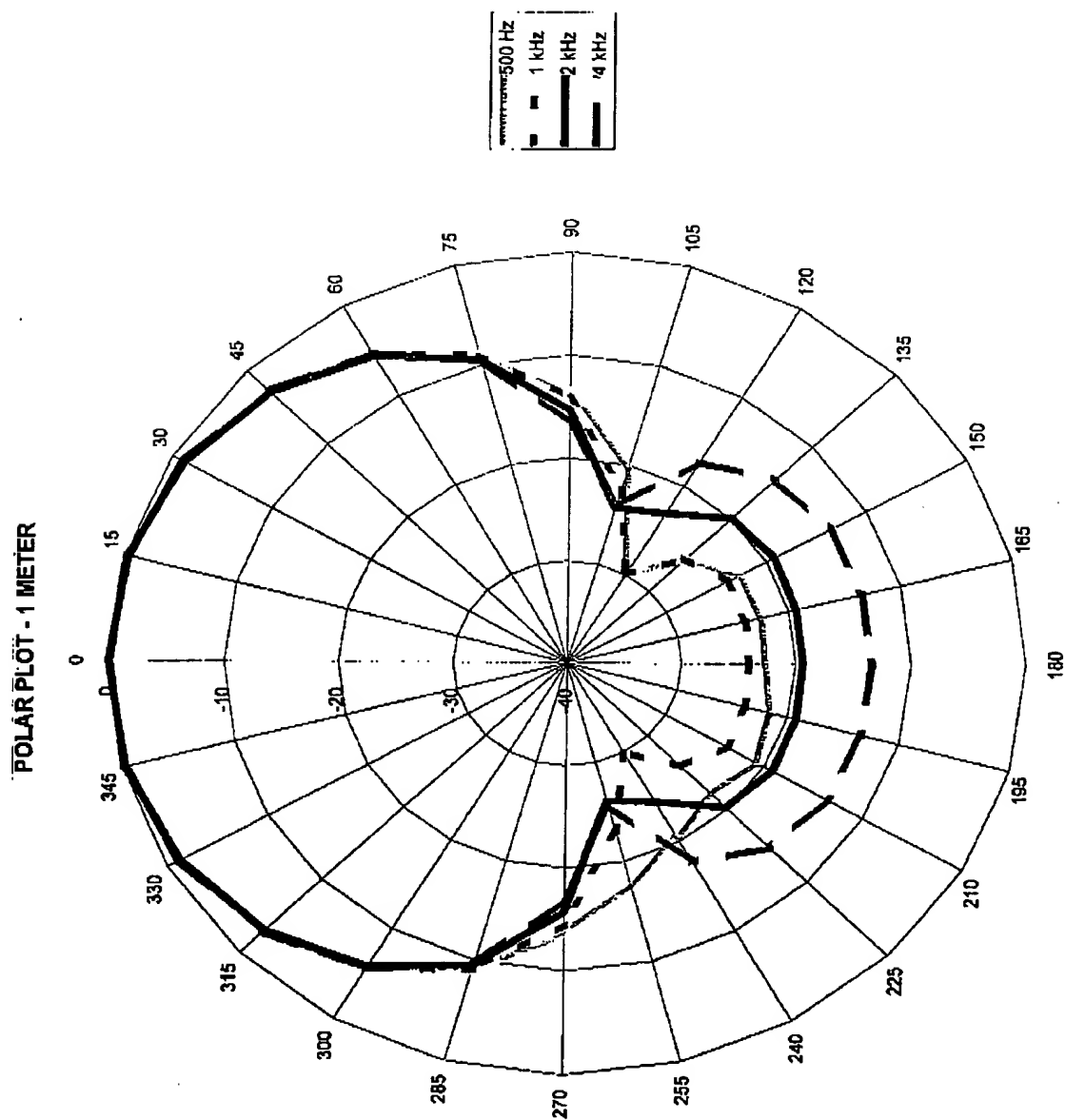


Figure 8B

"Directional Microphone System"
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REPLACEMENT DRAWINGS

10/14

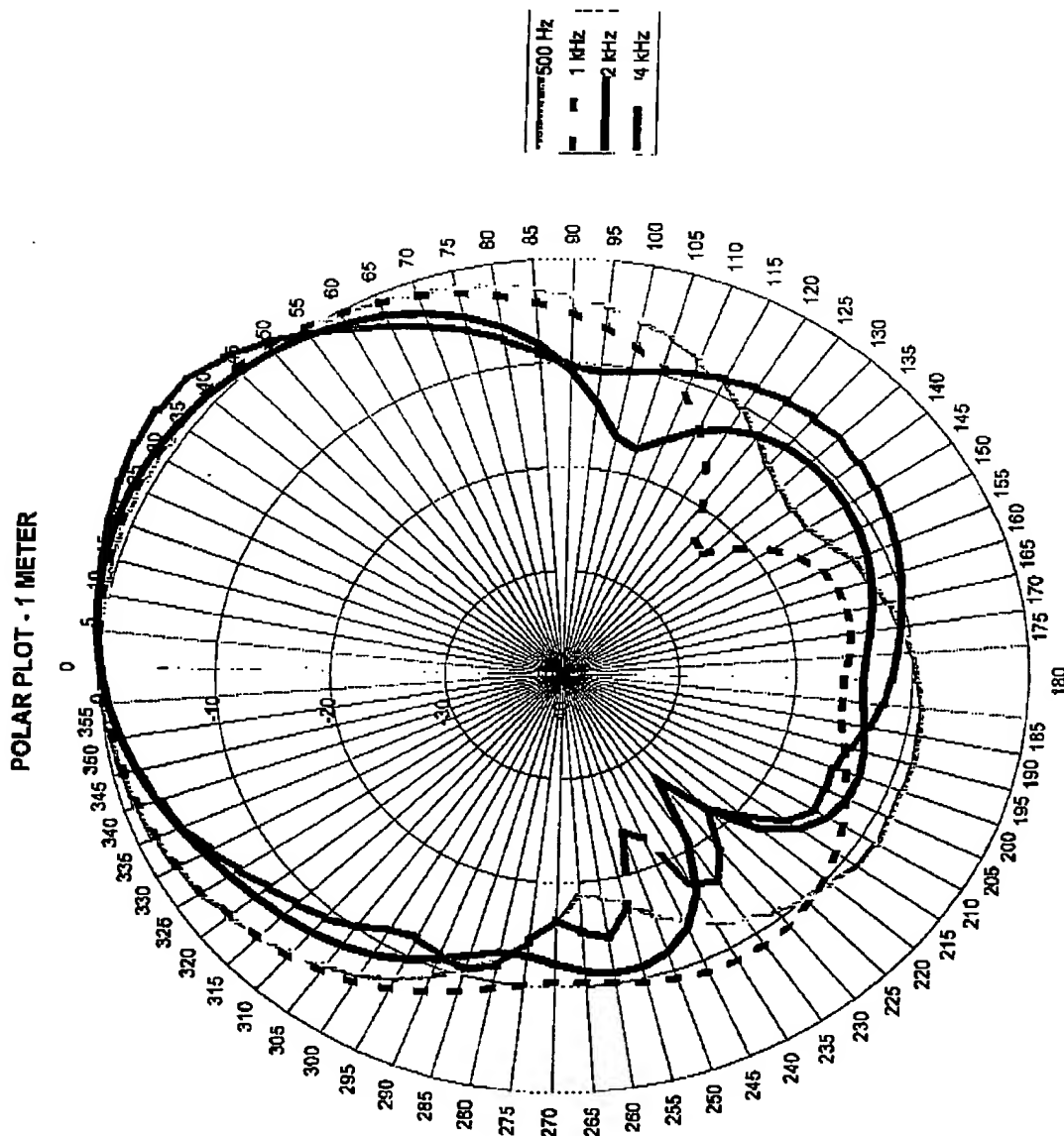


Figure 8C

"Directional Microphone System"
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REPLACEMENT DRAWINGS

11/14

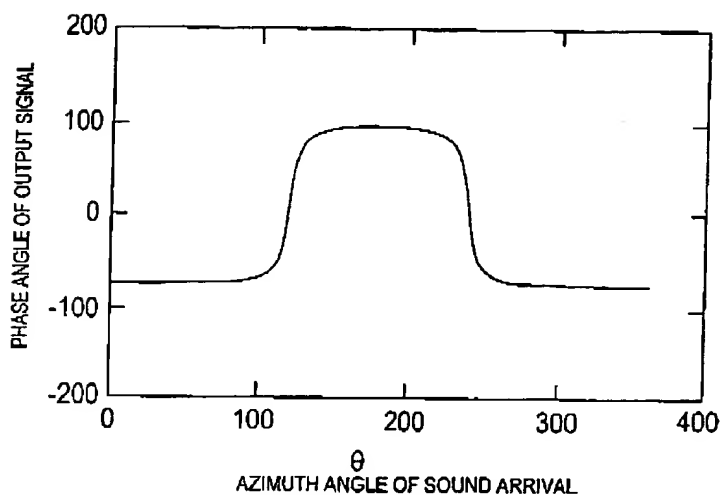


Figure 9A

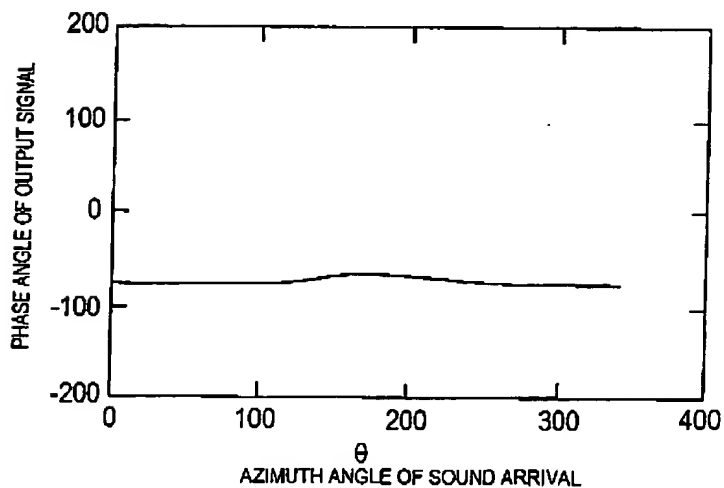


Figure 9B

"Directional Microphone System"
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Application Serial No. 09/610,188

REPLACEMENT DRAWINGS

12/14

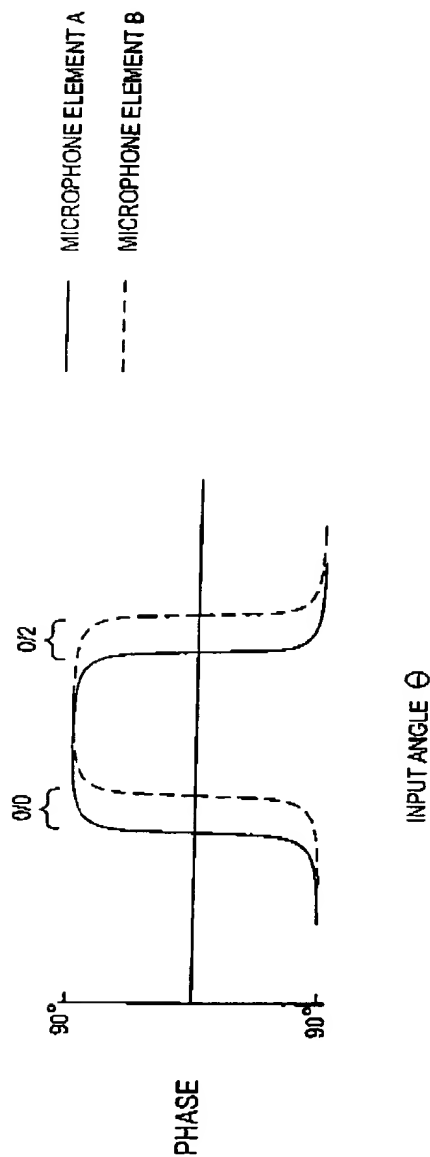


Figure 10

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REPLACEMENT DRAWINGS

13/14

ELEMENT TYPE	Conventional Elements				New Elements			
	Bipolar (Figure 8) DR=0	Hyper- Cardioid DR=0.33	Super- Cardioid DR=0.68	Cardioid DR=1	Anti- SupCard. DR=1.73	DR=2	DR=2.5	Anti- HypCard. DR=3
Theoretical DI	9.0	8.7	9.3	9.0	7.9	7.7	7.4	7.2
1.5 dB Element Mismatch	5.6	5.4	2.0	3.2	5.8	6.1	6.4	6.5
5° Misalignment	4.6	3.8	2.7	4.6	6.3	6.5	6.6	6.6
2 μ s Delay Error	3.1	2.6	1.8	3.0	5.0	5.4	5.8	6.0
Misalignment and Delay Error Combined	3.8	3.5	2.9	3.6	5.0	5.2	5.6	5.8

Figure 11

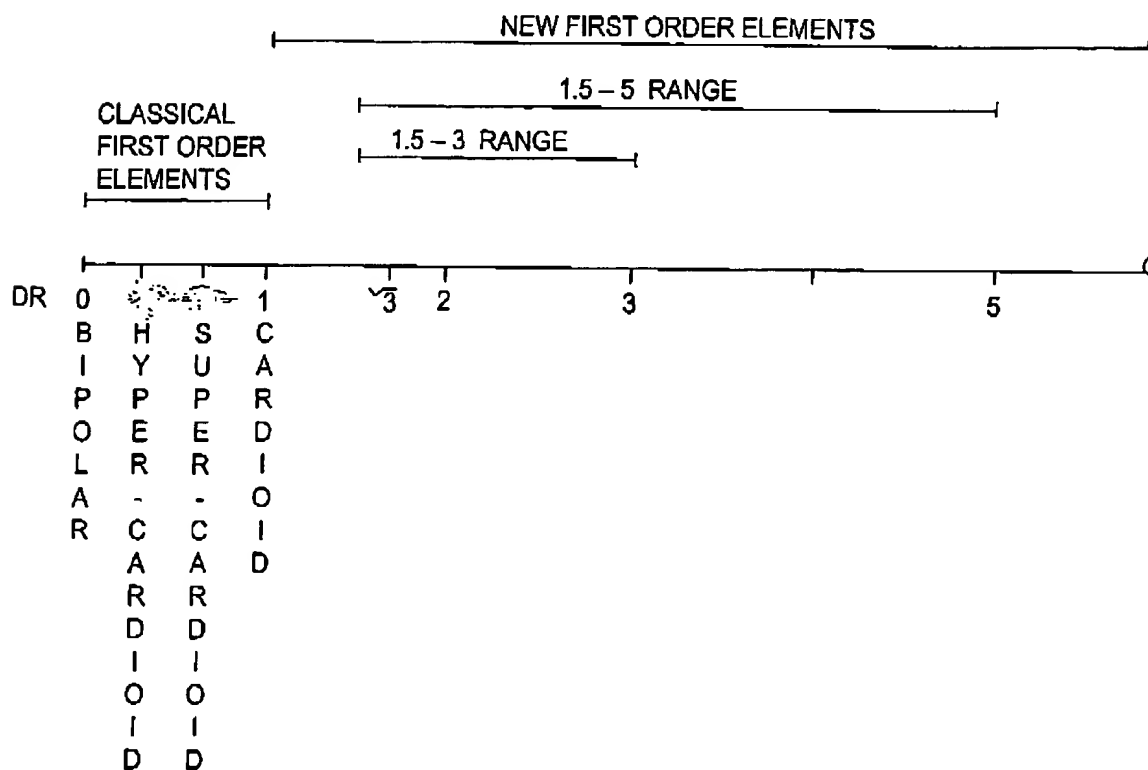


Figure 12

"Directional Microphone System"
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Application Serial No. 09/610,188 REPLACEMENT DRAWINGS

14/14

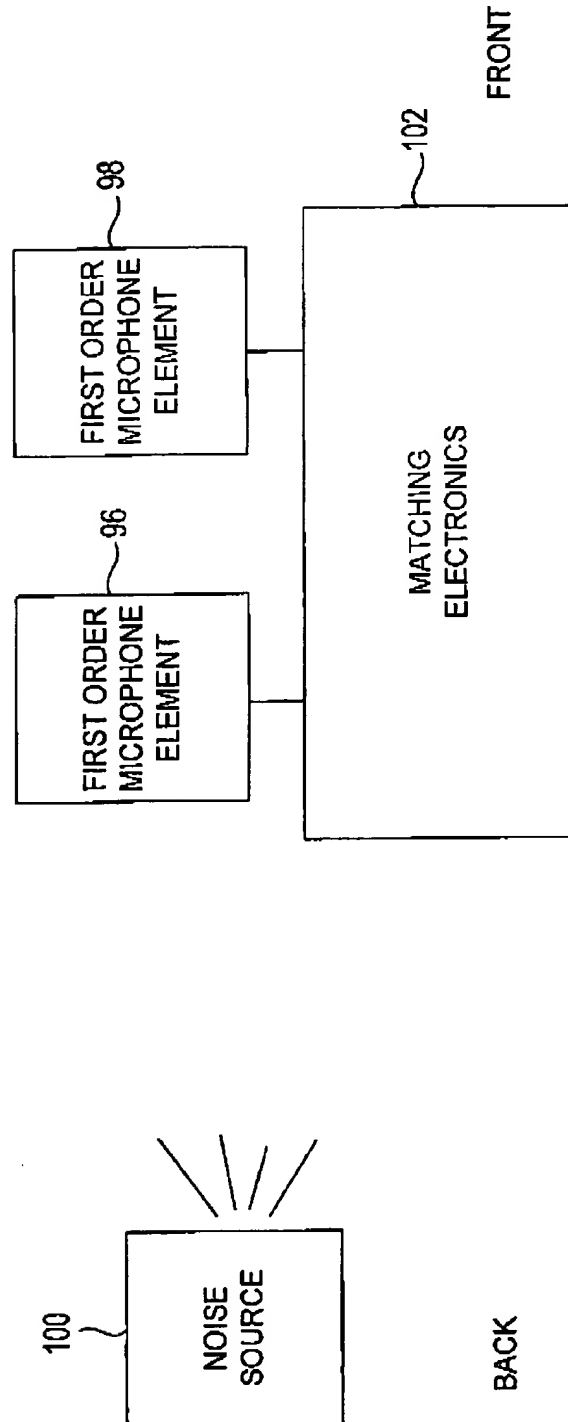


Figure 13